

Attention:

Amendments to the Construction Code Rules (Michigan Residential Code) take effect February 29, 2004. All units of government who administer and enforce a construction code are required to use the rules promulgated under 1972 PA 230, the Stille-DeRossett-Hale Single State Construction Code Act. The State Construction Code Act was amended by 1999 PA 245, effective December 28, 1999, requiring the use of the State Codes as they are updated by rules promulgated after October 15, 1999.

R 408.30401 of the Michigan Administrative Code adopts by reference the International Residential Code, 2003 edition, as published by the International Code Council, Inc. The subsequent rules either add, amend, or delete certain provisions of the International Residential Code.

Copies of the International Residential Code are available from the International Code Council, 5203 Leesburg Pike, Suite 600, Falls Church, VA 22041. Please visit the ICC website at <http://www.iccsafe.org/news/LVBOD.html> for specific instructions.

It is anticipated the Michigan Residential Code books will be available in early May, at a cost of \$45.00, from the Michigan Department of Labor & Economic Growth, Bureau of Construction Codes and Fire Safety, P.O. Box 30255, Lansing, Michigan 48909. Please make checks payable to the State of Michigan. A copy of the Codes and Standards Order Form may be downloaded from the bureau web site at www.michigan.gov/bccfs or you may call 517/241-9313 to obtain a copy of the form.

Additional information relating to code administration and enforcement in the State of Michigan is available on the Bureau of Construction Codes and Fire Safety's web site www.michigan.gov/bccfs.

(By authority conferred on the director of the department of labor & economic growth by section 4 of 1972 PA 230 and Executive Reorganization Order No. 1996-2, MCL 125.1504 and 445.2001 and Executive Reorganization Order No. 2003-1, MCL 445.2011.)

R 408.30503, R 408.30505, R 408.30506, R 408.30508, R 408.30510, R 408.30511, R 408.30512, R 408.30513, R 408.30514, R 408.30515, R 408.30517, R 408.30518, R 408.30519, R 408.30520, R 408.30521, R 408.30522, R 408.30523, R 408.30524, R 408.30526, R 408.30531, R 408.30534, R 408.30536, and R 408.30537 of the Michigan Administrative Code are amended and R 408.30539, R 408.30540, R 408.30541, R 408.30542, R 408.30543, R 408.30544, R 408.30545, R 408.30546, and R 408.30547 are added to the Code as follows:

R 408.30401 Applicable code.

Rule 401. The provisions of the international residential code, 2003 edition, including appendices A, B, C, D, E, F, G, J, K, and L, except for sections R104.8, R108.2, R108.3, R108.4, R108.5, R112.3, N1101 to N1104.1, tables N1101.2, N1102.1, N1102.1.1.1(1), N1102.1.1.1(2), N1102.1.1.2, N1102.4, N1103.1, N1103.5, and N1104.1, sections P2503.8, P2709.2.1, AJ102.4, and IBC-2003, ICC EC-2003, IECC-2003, IMC-2003, IPC-2003, NFPA 70-02 listed in chapter 43 govern the construction, alteration, relocation, demolition, use, and occupancy of buildings and structures, and, with exceptions noted, the international residential code as adopted by reference in these rules. All references to the International Building Code, International Residential Code, International Energy Conservation Code, International Electrical Code, International Existing Building Code, International Mechanical Code, and International Plumbing Code mean the Michigan Building Code, Michigan Residential Code, Michigan Uniform Energy Code, Michigan Electrical Code, Michigan Rehabilitation Code for Existing Buildings, Michigan Mechanical Code, and Michigan Plumbing Code respectively. The codes are available for inspection at the Okemos office of the Michigan Department of Labor & Economic Growth, Bureau of Construction Codes and Fire Safety. The codes may be purchased from the International Code Council, 5203 Leesburg Pike, Suite 600, Falls Church, VA 22041, or from the Michigan Department of Labor & Economic Growth, Bureau of Construction Codes and Fire Safety, 2501 Woodlake Circle, Okemos, Michigan 48864, at a cost as of the time of adoption of these amendatory rules of \$45.00.

MICHIGAN RESIDENTIAL CODE

R 408.30501 Appointment.

R103.2. "Building official" means the person who is appointed and employed by a governmental subdivision, who is charged with the administration and enforcement of the state codes specified in R 408.30499, and who is registered in compliance with 1986 PA 54, MCL 338.2301 et seq.

R 408.30502. Building inspector.

R103.3. "Building inspector" means the person who is appointed and employed by a governmental subdivision, who is charged with the administration and enforcement of the state codes specified in R 408.30499, and who is registered in compliance with 1986 PA 54, MCL 338.2301 et seq.

R 408.30503 Approved materials and equipment.

R104.9. Approved materials and equipment. Materials, equipment, and devices shall be constructed or installed in accordance with approvals granted under section 21 of 1972 PA 230, MCL 125.1521 or by the building official.

R 408.30504 Alternative materials, design, and methods of construction and equipment.

R104.11. Alternative materials, design, and methods of construction and equipment. The provisions of the code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by the code, if the alternative has been approved. An alternative material, design, or method of construction shall be approved where the building official finds that the proposed design is satisfactory and complies with the intent of the provisions of the code, and that the material, method, or work offered is, for the purpose intended, at least the equivalent of that prescribed in the code. Compliance with the specific performance-based provisions of the Michigan building, R 408.30401 to R 408.30499a, electrical, R 408.30801 to R 408.30880, mechanical, R 408.30901a to R 408.30998a and plumbing, R 408.30701 to R 408.30796, codes instead of specific requirements of the code shall also be permitted as an alternate.

R 408.30505 Work exempt from permit.

R105.2. Work exempt from permit. Exemption from the permit requirements of the code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of the code or any other laws or ordinances of this jurisdiction. Permits are not required for any of the following:

- (a) Building permits shall not be required for any of the following:
 - (i) One-story detached accessory structures, if the floor area does not exceed 200 square feet (18.58 m²).
 - (ii) A fence that is not more than 6 feet (1829 mm) high.
 - (iii) A retaining wall that is not more than 4 feet (1219 mm) in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge.

(iv) A water tank supported directly upon grade if the capacity is not more than 5,000 gallons (18 927 L) and the ratio of height to diameter or width is not greater than 2 to 1.

(v) A sidewalk or driveway that is not more than 30 inches (762 mm) above adjacent grade and is not over any basement or story below.

(vi) Painting, papering, tiling, carpeting, cabinets, counter tops, and similar finish work.

(vii) A prefabricated swimming pool that is less than 24 inches (610 mm) deep.

(viii) Swings and other playground equipment accessory to a 1- or 2-family dwelling.

(ix) Window awnings supported by an exterior wall which do not project more than 54 inches (1372 mm) from the exterior wall and do not require additional support.

(b) Electrical permits shall not be required for the following;

Repairs and maintenance: A permit is not required for minor repair work, including the replacement of lamps or the connection of approved portable electrical equipment to approved permanently installed receptacles.

(c) Mechanical permits shall not be required for any of the following:

(i) Portable heating, cooking, or clothes drying appliances.

(ii) Replacement of any minor part that does not alter approval of equipment or make the equipment unsafe.

(iii) A portable heating appliance.

(iv) A portable ventilation appliance.

(v) A portable cooling unit.

(vi) Steam, hot or chilled water piping within any heating or cooling equipment regulated by the code.

(vii) Replacement of any minor part that does not alter approval of equipment or make the equipment unsafe.

(viii) A portable evaporative cooler.

(ix) A self-contained portable refrigeration unit that is not more than 1.5 horsepower (1119 W).

(x) Portable fuel cell appliances that are not connected to a fixed piping system and are not interconnected to a power grid.

(xi) Gas piping limited to 10 feet (3048 mm) in length and not more than 6 fittings.

(d) Plumbing permits shall not be required for any of the following:

(i) The stopping of leaks in drains, water, soil, waste or vent pipe; if any concealed trap, drainpipe, water, soil, waste or vent pipe becomes defective and it becomes necessary to remove and replace the same with new material, then the work is considered as new work and a permit shall be obtained and inspection made as provided in the code.

(ii) The clearing of stoppages or the repairing of leaks in pipes, valves, or fixtures, and the removal and reinstallation of water closets, if the repairs do not involve or require the replacement or rearrangement of valves, pipes, or fixtures.

R 408.30506 Submittal documents.

R106.1. Submittal documents. Construction documents, special inspection and structural program and other data shall be submitted in 1 or more sets with each application for a permit. The construction documents shall be prepared by or under the direct supervision of a registered design professional when required by article 20 of 1980

PA 299, MCL 339.101 et seq., and known as the Michigan occupational code. Where special conditions exist, the building official is authorized to require additional construction documents to be prepared by a registered design professional.

R106.1.4. Truss design data. As an alternative to the submission of truss design drawings, the truss design data sheet may be provided to the building official as part of the construction documents at the time of application. Truss design drawings shall be submitted to the building official prior to truss installation as required by section R802.10.1.

R802.10.1 Truss design drawings. Truss design drawings, prepared in conformance with section R802.10.1, shall be provided to the building official and approved prior to installation. The truss design data sheet, figure R802.10.1, may be provided to the building official at the time of permit application, as an alternative to design drawings as permitted in section R106.1.4. Truss design drawings shall include, at a minimum, the information specified below. Truss design drawings shall be provided with the shipment of trusses delivered to the jobsite.

1. Slope or depth, span, and spacing.
2. Location of all joints.
3. Required bearing widths.
4. Design loads as applicable.
 - a. Top chord live load (including snow loads).
 - b. Top chord dead load.
 - c. Bottom chord live load.
 - d. Bottom chord dead load.
 - e. Concentrated loads and their points of application.
 - f. Controlling wind and earthquake loads.
5. Adjustments to lumber and joint connector design values for conditions of use.
6. Each reaction force and direction.
7. Joint connector type and description (e.g., size, thickness, or gauge) and the dimensioned location of each joint connector except where symmetrically located relative to the joint interface.
8. Lumber size, species, and grade for each member.
9. Connection requirements for the following:
 - a. Truss to truss girder.
 - b. Truss ply to ply.
 - c. Field splices.
10. Calculated deflection ratio and/or maximum description for live and total load.
11. Maximum axial compression forces in the truss members to enable the building designer to design the size, connections, and anchorage of the permanent continuous lateral bracing. Forces shall be shown on the truss design drawing or on supplemental documents.
12. Required permanent truss member bracing location.

Roof Loading Data Sheet

Authority: 1972 PA 230

Completion:

Completed prior to application for plan review and building permit. This form is a voluntary form used to assist in the permit approval process.

Jurisdictional information should be included in this space

Applicant's Name:		Date:
Applicant's Address:		Permit Number:
City:	State:	Zip:
Applicant's Signature:		
Job Location:		
Address:		
Township/Village/City:		County:

THIS FORM SHOULD BE COMPLETED BY THE PERMIT APPLICANT, OR DESIGN PROFESSIONAL FOR C_e, C_t, AND I, PLACE AN "X" IN THE APPROPRIATE BOX THAT BEST DESCRIBES THE STRUCTURE.

Ground Exposure, P_g = _____

From Figure R301.2(5) MRC or Figure 1608.2 MBC

Exposure Factor C _e						
Exposure		Fully Exposed ¹		Partially Exposed ²		Sheltered ³
A	Large city center with at least 1/2 the buildings exceeding 70 ft. in height.	N/A		1.1		1.3
B	Urban and suburban areas, wooded areas or other terrain with closely spaced objects having the size of single-family dwellings or larger.	0.9		1		1.2
C	Open terrain with scattered obstructions having heights less than 30 ft. (flat open country)	0.9		1		N/A
D	Flat unobstructed areas exposed to wind flowing over open water for a distance of at least 1 mile. (i.e. Great Lakes.)	0.8		0.9		N/A

¹Fully Exposed: Roofs exposed on all sides with no shelter by terrain, higher structures, or trees.

²Partially Exposed: All roofs except those designated as "fully exposed" or "sheltered."

³Sheltered: Roofs located tight among conifers that qualify as obstructions.

Thermal Factor C_t

Thermal Condition ⁴	C _t
All structures except as listed below	1
Structures kept just above freezing and those with cold, ventilated roofs with an R factor of 25 or greater between the ventilated and heated spaces, such as attics	1.1
Unheated structures and those intentionally kept below freezing, such as seasonal building or storage buildings	1.2
Continuously heated greenhouse with a roof R Value less than 2 and having an interior temperature maintained at about 50 degrees 3 ft above the floor during winter months and a temperature alarm system or an attendant to warn of a heating failure.	0.85

⁴These conditions shall be representative of the anticipated conditions during winter months for the life of the structure

Importance Factor

Category	I
I Building and other structures representing low hazard to human life, i.e.: Agricultural, Temporary, and Minor Storage Facilities.	0.8
II All buildings except those listed in Categories III and IV.	1
III Building and other structures representing substantial hazard to human life in the event of failure.	1.1
IV Buildings and other structures designated as essential facilities.	1.2

Attic Live Load

Entire Attic	Y/N
Specific Areas (if yes, list areas below)	Y/N
List Rooms:	

R 408.30507 Temporary power.

R107.3. The building official is authorized to give permission to temporarily supply and use power in part of an electric installation before the installation has been fully completed and the final certificate of completion has been issued. The part covered by the temporary certificate shall comply with the requirements specified for temporary lighting, heat, or power in the Michigan electrical code, R 408.30801 to R 408.30880.

R 408.30508 Payment of fees.

R108.1. Fees. The fees prescribed in section 22 of 1972 PA 230, MCL 125.1522 shall be paid to the enforcing agency of the jurisdiction before a permit to begin work for new construction, alteration, removal, demolition, or other building operation may be issued. In addition, an amendment to a permit necessitating an additional fee shall not be approved until the additional fee is paid.

R 408.30509 Frame and masonry inspection.

R109.1.4. Frame and masonry inspection. Inspection of framing construction shall be made after the roof, all framing, firestopping, draftstopping, and bracing are in place and after the plumbing, mechanical, and electrical rough inspections are approved. Masonry inspections shall be made before the installation of masonry veneer and after the installation of base course flashing as specified in section R703.7.5 and weather-resistant sheathing paper as specified in section R703.2, and after the masonry construction is completed.

R 408.30510 Use and occupancy.

R110.1. Use and occupancy. A building or structure shall not be used or occupied, and a change in the existing occupancy classification of a building or structure or portion thereof shall not be made until a certificate of occupancy has been issued in accordance with section 13 of 1972 PA 230, MCL 125.1513.

R110.2. Change in use. A change in the character or use of an existing structure shall not be made, except as specified in the Michigan building code, R 408.30401 to R 408.30499a.

R 408.30511 Violation penalties.

R113.4. Violation penalties. It is unlawful for any person, firm, or corporation to violate a provision of the code or fail to conform with any of the requirements thereof, or erect, construct, alter, extend, repair, move, remove, demolish, or occupy any building, structure, or equipment regulated by the code, or cause work to be performed or done in conflict with or in violation of the approved construction documents or directive of the enforcing agency, or a permit or certificate issued under the code. A violator shall be assessed a fine in accordance with section 23 of 1972 PA 230, MCL 125.1523.

R 408.30512 Notice to owner.

R114.1. Notice to owner. Upon notice from the enforcing agency, work on any building or structure that is being done contrary to the code or in a dangerous or unsafe manner shall immediately cease. The notice shall be in accordance with section 12 of 1972 PA 230, MCL 125.1512. Any person who is served with a stop work order, except

for work that the person is directed to perform to remove a violation or unsafe condition is subject to the penalty provisions in section 23 of 1972 PA 230, MCL 125.1523.

R 408.30513 Definitions.

R202. Definitions.

"Building" means a combination of materials, whether portable or fixed, forming a structure affording a facility or shelter for use or occupancy by persons, animals, or property. The term does not include a building incidental to the use for agricultural purposes of the land on which the building is located if it is not used in the business of retail trade. The term shall be construed as though followed by the words "or part or parts of the building and all equipment in the building" unless the context clearly requires a different meaning.

"Registered design professional" means an individual who is licensed under article 20, 1980 PA 299, MCL 339.2001 et seq.

"Structure" means that which is built or constructed, an edifice or building of any kind, or a piece of work artificially built up or composed of parts joined together in some definite manner. Structure does not include a structure incident to the use for agricultural purposes of the land on which the structure is located and does not include works of heavy civil construction including without limitation any of the following:

- (a) A highway.
- (b) A bridge.
- (c) A dam.
- (d) A reservoir.
- (e) A lock.
- (f) A mine.
- (g) A harbor.
- (h) A dockside port facility.
- (i) An airport landing facility.
- (j) A facility for the generation, or transmission, or distribution of electricity.

Structure shall be construed as though followed by the word "or part or parts of the structure and all equipment in the structure," unless the context clearly indicates otherwise.

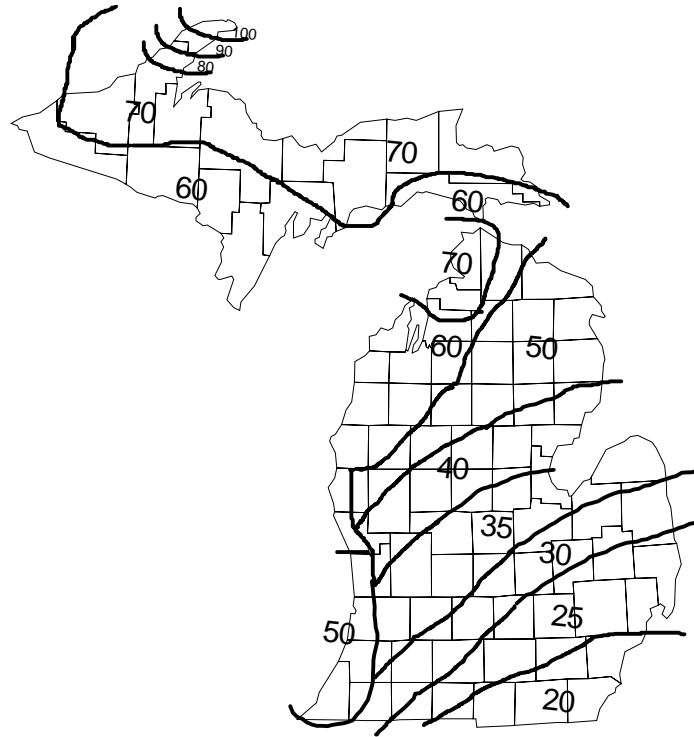
"Sunroom addition" means a new structure with glazing in excess of 40% of the gross area of the structure's exterior walls and roof added to an existing dwelling.

R 408.30514 Means of appeal.

R112.1 Means of appeal. A person has the right to appeal a decision of the enforcing agency to the board of appeals. An application for appeal shall be based on a claim that the true intent of the code or the rules governing construction have been incorrectly interpreted, the provisions of the code do not apply, or an equal or better form of construction is proposed. The application shall be filed in accordance with section 14 of 1972 PA 230, MCL 125.1514.

R 408.30515 Ground snow loads.

FIGURE R301.2(5)
Ground Snow Load P_g for Michigan (lb/ft²)



R 408.30516 Openings for underfloor ventilation.

R408.2 Openings for underfloor ventilation. The minimum net area of ventilation openings shall not be less than 1 square foot (0.0929 m²) for each 150 square feet (100 m²) of underfloor space area. One such ventilating opening shall be within 3 feet (914 mm) of each corner of the building. Ventilation openings shall be covered for their height and width with any of the following materials provided that the least dimension of the covering shall not exceed ¼ inch (6.4 mm):

- a. Perforated sheet metal plates not less than 0.070 inch (1.8 mm) thick.
- b. Expanded sheet metal plates not less than 0.047 inch (1.2 mm) thick.
- c. Cast iron grills or grating.
- d. Extruded load-bearing brick vents.
- e. Hardware cloth of 0.035 inch (0.89 mm) wire or heavier.
- f. Corrosion-resistant wire mesh, with the least dimension being 1/8 inch (3.2 mm).

Exceptions:

1. Where warranted by climatic conditions, ventilation openings to the outdoors are not required if ventilation openings to the interior are provided.
2. The total area of ventilation openings may be reduced to 1/1,500 of the underfloor area where the ground surface is treated with an approved vapor retarder material and the required openings are placed so as to provide cross-ventilation of the space. The installation of operable louvers shall not be prohibited.

3. Underfloor spaces used as supply plenums for distribution of heated and cooled air shall comply with the requirements of section M1601.4.

4. Ventilation openings are not required where continuously operated mechanical ventilation is provided at a rate of 1.0 cfm (10 m²) for each 50 square feet (1.02 L/s) of underfloor space floor area and ground surface is covered with an approved vapor retarder material.

R 408.30517 Rescinded.

R 408.30518 Modular ramps.

R311.6.4 Modular ramps. Modular ramp systems approved pursuant to section 21 of 1972 PA 230, MCL 125.1521 are not required to comply with the requirements of section R403.1.4 of the code.

R 408.30519 Treads and risers.

R311.5.3.1. Riser height. The maximum riser height shall be 8 1/4 inches (210 mm). The riser shall be measured vertically between leading edges of the adjacent treads. The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm)

R311.5.3.2. Tread depth. The minimum tread depth shall be 9 inches (229 mm). The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm). Winder treads shall have a minimum tread depth of 10 inches (254 mm) measured as above at a point 12 inches (305 mm) from the side where the treads are narrower. Winder treads shall have a minimum tread depth of 6 inches (152 mm) at any point. Within any flight of stairs, the greatest winder tread depth at the 12-inch (305 mm) walk line shall not exceed the smallest by more than 3/8 inch (9.5 mm).

R 408.30520 Doors.

Rule 520. Section R311.4.2 of the code is amended and section R311.4.2.1 is added to the code to read as follows:

R311.4.2. Type and size. The required exit door shall be a side-hinged door not less than 3 feet (914 mm) in width and 6 feet, 8 inches (2032 mm) in height. Other exterior hinged or sliding doors shall not be less than 24 inches in width and 6 feet, 6 inches in height.

R311.4.2.1. Interior doors. Interior doors shall be not less than 24 inches in width and 6 feet, 6 inches in height.

Exception: Doors to areas less than 10 square feet of floor area.

R 408.30521 Elevation requirements.

Rule 521. Section R323.2.1 of the code is amended to read as follows;

R323.2.1. Elevation requirements. (1) Buildings and structures shall have the lowest floor elevated 1 foot above the design flood elevation.

(2) In areas of shallow flooding (AO zones), buildings and structures shall have the lowest floor (including basement) elevated at least as high above the highest adjacent grade as the depth number specified in feet (mm) on the FIRM, or not less than 2 feet (51 mm) if a depth number is not specified.

(3) Basement floors that are below grade on all sides shall be elevated to or above the design flood elevation.

Exception: Enclosed areas below the design flood elevation, including basements that have floors which are not below grade on all sides, shall meet the requirements of section R323.2.2 of the code.

R 408.30522 Minimum depth.

Rule 522. Section R403.1.4 of the code is amended to read as follows:

R403.1.4. Minimum depth. All exterior footings and foundation systems shall extend 42 inches below actual grade.

Exceptions:

1. Frost-protected footings constructed in accordance with section R403.3 of the code and footings and foundations erected on solid rock shall not be required to extend below the frost line.

2. The footings in detached accessory structures not exceeding 400 square feet in area (37.16 m²) or 10 feet in height (3048 mm) shall extend 12 inches (305 mm) below grade to undisturbed soil or soils of sufficient bearing capacity. All vegetation and topsoil shall be removed for placement of accessory structures.

3. Upon evidence of the existence of any of the following conditions, the building official may modify the footing depth accordingly:

(a) Freezing temperatures (freezing degree days).

(b) Soil type.

(c) Ground water conditions.

(d) Snow depth experience.

(e) Exposure to the elements.

(f) Other specific conditions identified by the building official that may affect the foundation system.

4. Constructed in accordance with section R403.3.

5. Constructed in accordance with ASCE 32-01 as listed in chapter 43.

6. Decks not supported by a dwelling need not be provided with footings that extend below the frost line.

R 408.30523 Rescinded.

R 408.30524 Michigan uniform energy code.

Rule 524. Buildings shall be designed and constructed in accordance with the Michigan uniform energy code part 10 rules, R 408.31001 to R 408.31099.

R 408.30525 Scope.

M1301.1. Scope. The provisions of this chapter shall govern the installation of mechanical systems not specifically covered in other chapters applicable to mechanical systems. Installations of mechanical appliances, equipment, and systems not addressed

by the code shall comply with the applicable provisions of the Michigan mechanical code, R 408.30901a to R 408.30998a and the international fuel gas code listed in chapter 43.

R 408.30526 Sizing.

M1401.3. Sizing. Heating and cooling equipment shall be sized based on building loads calculated in accordance with the provisions of ACCA Manual J-1987, as listed in chapter 43 or other approved heating and cooling calculation methodologies. Ductwork shall be sized in accordance with the provisions of ACCA Manual D-1995, as listed in chapter 43.

R 408.30527 Standards.

M2001.1.1. Standards. Oil-fired boilers and their control systems shall be listed and labeled in accordance with UL 726 listed in chapter 43. Electric boilers and their control systems shall be listed in accordance with UL 834 listed in chapter 43. Boilers shall be designed and constructed in accordance with the requirements of the Michigan boiler code, R 408.4001 to R 408.5507. Gas-fired boilers shall conform to the requirements listed in chapter 24 of the code.

R 408.30528 Terms defined in other codes.

G2402.3. Terms defined in other codes. Where terms are not defined in the code and are defined in the Michigan electrical code, R 408.30801 to R 408.30880, Michigan building code, R 408.30401 to R 408.30499a, international fire code listed in chapter 43, Michigan mechanical code, R 408.30901a to R 408.30998a or Michigan plumbing code, R 408.30701 to R 408.30796, the terms shall have the meanings ascribed to them as in those codes.

R 408.30529 Lining required.

P2709.2. Lining required. The adjoining walls and floor framing enclosing on-site built-up shower receptors shall be lined with sheet lead, copper, or a plastic liner material that complies with ASTM D 4068 listed in chapter 43. The lining material shall extend not less than 3 inches (76 mm) beyond or around the rough jambs and not less than 3 inches (76 mm) above the finished thresholds.

R 408.30530 Relief valve discharge.

P2803.6.1. Relief valve discharge. Relief valve discharge pipes shall be rigid pipe approved for water distribution with a rating of 210 degrees Fahrenheit. The discharge pipe shall be the same diameter as the relief valve outlet and shall drain by gravity flow. Valves shall not be connected in the relief valve discharge pipe. Relief valves shall not discharge so as to be a hazard, a potential cause of damage, or a nuisance. Discharge pipe from relief valves shall terminate atmospherically not more than 4 inches from the floor with an unthreaded end and shall not be directly connected to the drainage system.

R 408.30531 Solvent cementing.

P2904.8.1. Solvent cementing. Joint surfaces shall be clean and free from moisture and an approved primer shall be applied. Solvent cement, orange in color and conforming to

ASTM F 493, as listed in chapter 43, shall be applied to all joint surfaces. The joint shall be made while the cement is wet and in accordance with ASTM D 2846 or ASTM F 493 as listed in chapter 43. Solvent-cement joints shall be permitted above or below ground.

Exception: A primer is not required where all of the following conditions apply:

- a. The solvent cement used is third-party certified as conforming to ASTM F 493 as listed in chapter 43.
- b. The solvent cement used is yellow in color.
- c. The solvent cement is used only for joining 1/2 inch (12.7 mm) through 2-inch (51 mm) diameter CPVC pipe and fittings.
- d. The CPVC pipe and fittings are manufactured in accordance with ASTM D 2846 as listed in chapter 43.

R 408.30532 Roof extension.

P3103.1. Roof extension. All open vent pipes that extend through a roof shall terminate at least 1 foot (305 mm) above the roof, except that if a roof is to be used for any purpose other than weather protection, then the vent extension shall be run not less than 7 feet (2134 mm) above the roof.

R 408.30533 Frost closure.

P3103.2. Frost closure. To prevent frost closure, every vent extension through a roof shall be not less than 3 inches (76 mm) in diameter. Any increase in the size of the vent shall be made inside the building with a minimum of 1 foot (305 mm) below the roof or inside the wall.

R 408.30534 Individual venting required.

P3106.2. Individual venting required. When fixtures other than water closets discharge into a 3-inch horizontal branch downstream from a water closet, then each fixture connected to the branch within 54 inches (1371.6 mm) downstream of the water closet flange shall be vented individually.

R 408.30535 Connection.

P3111.2.2. Connection. The combination waste and vent systems shall be provided with a dry vent connected to a point within the system or the system shall connect to a horizontal drain that is vented in accordance with one of the methods specified in this chapter. Combination waste and vent systems connecting to building drains receiving only the discharge from a stack or stacks shall be provided with a dry vent. The vent connecting the combination waste and vent pipe shall extend vertically not less than 6 inches (152 mm) above the flood level rim of the highest fixture being vented before offsetting horizontally.

R 408.30536 General

E3301.1. Applicability. The provisions of chapters 33 to 42 of the code shall establish the general scope of the electrical system and equipment requirements of the code. Chapters 33 to 42 of the code cover those wiring methods and materials most commonly encountered in the construction of 1- and 2-family dwellings and structures regulated by

the code. Other wiring methods, materials, and subject matter covered in the Michigan electrical code, R 408.30801 to R 408.30880 are also allowed by the code.

E3301.2. Scope. Chapters 33 to 42 of the code shall cover the installation of electrical systems, equipment, and components indoors and outdoors that are within the scope of the code, including services, power distribution systems, fixtures, appliances, devices, and appurtenances. Services within the scope of the code shall be limited to 120/240 volt, 0- to 400- ampere, single-phase systems. These chapters specifically cover the equipment, fixtures, appliances, wiring methods, and materials that are most commonly used in the construction or alteration of 1- and 2-family dwellings and accessory structures regulated by the code. The omission from these chapters of any material or method of construction provided by the Michigan electrical code, R 408.30801 to R 408.30880, shall not be construed as prohibiting the use of such material or method of construction. Electrical systems, equipment, or components not specifically covered in these chapters shall comply with the applicable provisions of the Michigan electrical code, R 408.30801 to R 408.30880.

R 408.30537 Separate outdoor electric space conditioning equipment.

E3501.6.3. Separate outdoor electric space conditioning equipment. A service disconnect for separately metered outdoor electric space conditioning equipment may be located immediately adjacent to the outdoor meter cabinet. A permanent plaque or directory shall be installed at each service disconnect location denoting the other services, feeders, and branch circuits supplying a building or structure and area served by each service, feeder, and branch circuit.

R 408.30538 Combustible insulation.

R808.1. Combustible insulation. Combustible insulation shall be separated a minimum of 3 inches (76 mm) from recessed lighting fixtures, fan motors, and other heat-producing devices.

Exception: When heat-producing devices are listed for lesser clearances, combustible insulation complying with the listing requirements shall be separated in accordance with the conditions stipulated in the listing.

Recessed lighting fixtures installed in the building thermal envelope shall be installed in accordance with the manufacturer's installation instructions.

R 408.30539 Plastic pipe.

P3003.3.6.1. ABS plastic pipe. Solvent cement for ABS plastic pipe conforming to ASTM D 2235, as listed in chapter 43, shall be applied to all joint surfaces.

P3003.3.6.2 PVC plastic pipe. A primer complying with ASTM F 656, as listed in chapter 43, shall be applied to all PVC solvent-cemented joints. Solvent cement for PVC plastic pipe conforming to ASTM D 2564, as listed in chapter 43, shall be applied to all joint surfaces.

R 408.30540 Distance of trap from vent.

P3105.1. Distance of trap from vent. Each fixture trap shall have a protecting vent located so that the slope and the developed length in the fixture drain from the trap weir to the vent fitting are within the requirements set forth in table P3105.1.

R 408.30541 Fuel burning appliances.

M1307.6. Fuel burning appliances. Fuel burning appliances shall not be installed within 10 feet (3048 mm) of a laundry chute.

R 408.30542 Duct insulation/floor register location.

M1601.3.4. Duct insulation. Duct insulation shall be installed in accordance with the following requirements:

1. A vapor retarder having a maximum permeance of 0.05 perm $[(2.87 \text{ ng}/(\text{s} \cdot \text{m}^2 \cdot \text{Pa}))]$ in accordance with ASTM E 96, as listed in chapter 43, or aluminum foil with a minimum thickness of 2 mils (0.051 mm), shall be installed on the exterior of insulation on cooling supply ducts that pass through nonconditioned spaces conducive to condensation.

2. Exterior duct systems shall be protected against the elements.

3. Duct coverings shall not penetrate a fireblocked wall or floor.

4. All portions of the air distribution system shall be installed in accordance with section M1601 and be insulated to an installed R-5 when system components are located within the building but outside the conditioned space, and R-8 when located outside to the building. When located within a building envelope assembly, at least R-8 shall be applied between the duct and that portion of the assembly farthest from conditioned space.

Exception: Exhaust air ducts and portions of the air distribution system within appliances or equipment.

M1601.3.9 Floor register location. Floor registers located in room or spaces containing water closets shall be located a minimum of 3 feet from the water closet.

R 408.30543 Boiler low-water cutoff.

M2002.5. Boiler low-water cutoff. All steam and hot water boilers shall be protected with a low-water cutoff control. The low-water control shall automatically stop the combustion operation of the appliance when the water level drops below the lowest safe water level as established by the manufacturer. The low-water cut off on all low-pressure boilers shall be installed in accordance with ASME code section IV which is adopted by reference in these rules. The code is available for inspection at the Michigan Department of Labor & Economic Growth, Bureau of Construction Codes and Fire Safety, 2501 Woodlake Circle, Okemos, Michigan 48864, or from the American Society of Mechanical Engineers, Three Park Avenue, New York, New York, 10016-5990, at a cost as of the time of adoption of these amendatory rules of \$260.00.

A low-water cutoff shall be of the float or probe type or paddle-type non-reversing flow switch.

R 408.30544 Concrete and masonry foundation dampproofing.

R406.1. Concrete and masonry foundation dampproofing. Except where required to be waterproofed by section R406.2, foundation walls that retain earth and enclose habitable or usable spaces located below grade shall be dampproofed from the top of the footing to the finished grade. Masonry walls shall have not less than 3/8 inch (9.5 mm) Portland cement parging applied to the exterior of the wall. The parging shall be dampproofed

with a bituminous coating, 3 pounds per square yard (1.63 kg/m²) of acrylic modified cement, 1/8-inch (3.2 mm) coat of surface-bonding mortar complying with ASTM C 887, as listed in chapter 43, or any material permitted for waterproofing in section R406.2. Concrete walls shall be dampproofed by applying any 1 of the above listed dampproofing materials or any 1 of the waterproofing materials listed in section R406.2 to the exterior of the wall.

Exception: Parging of unit masonry walls is not required where a material is approved for direct application to the masonry.

R 408.30545 Exterior covering.

R703.2. Weather-resistive sheathing paper. A minimum of one layer of No. 15 asphalt felt complying with ASTM D 226, as listed in chapter 43, for type 1 felt or other approved weather-resistive materials shall be applied over sheathing of all exterior walls. See table R703.4. Such felt or material shall be applied horizontally, with the upper layer lapped over the lower layer not less than 2 inches (51 mm). Where joints occur, felt shall be lapped not less than 6 inches (152 mm). Building paper or other approved material shall be continuous up to the underside of the rafter or truss top chord and terminated at penetrations and building appendages in such a manner to meet the requirements of the exterior wall envelope as described in section R703.1.

Exception: Such felt or material is permitted to be omitted in detached accessory buildings.

Table R703.4
WEATHER-RESISTANT SIDING ATTACHMENT AND MINIMUM THICKNESS

SIDING MATERIAL		NOMINAL THICKNESS ^a (INCHES)	JOINT TREATMENT	SHEATHING PAPER REQUIRED	TYPE OF SUPPORTS FOR THE SIDING MATERIAL AND FASTENERS ^{bcd}					
					Wood or Wood Structural Panel sheathing	Fiberboard Sheathing Into stud	Gypsum Sheathing Into stud	Foam Plastic Sheathing Into stud	Direct to studs	Number or Spacing of fasteners
Horizontal Aluminum ^c	Without Insulation	0.019 ^f	Lap	Yes	0.120 nail 1½" long	0.120 nail 2" long	0.120 2" long	0.120 nail ²	Not allowed	Same as stud spacing
		0.024	Lap	Yes	0.120 nail 1½" long	0.120 nail 2" long	0.120 nail 2" long	0.120 nail ²	Not allowed	
	With Insulation	0.019	Lap	Yes	0.120 nail 1½" long	0.120 nail 2½" long	0.120 nail 2½" long	0.120 nail ²	0.120 nail 1½" long	
Hardboard ^l Panel siding-vertical		7/16	Note g	Yes	Note o	Note o	Note o	Note o	Note o	6" panel edges 12" inter. Sup. ^p
Hardboard ^l Lap-siding-horizontal		7/16	Note r	Yes	Note q	Note q	Note q	Note q	Note q	Same as stud spacing
Steel ^l		29ga.	Lap	Yes	0.113 nail 1¾" Staple-1¾"	0.113 nail 2¾" Staple-2 ½"	0.113 nail 2½" Staple-2 ¼"	0.113 nail ² 2½"Staple ²	Not allowed	Same as stud spacing
Particleboard panels		3/8-1/2	Note g	Yes	6d box nail	6d box nail	6d box nail	Box nail ^e	6d box nail, 3/8 not allowed	6" panel edge 12" inter. Sup.
		5/8	Note g	Yes	6d box nail	8d box nail	8d box nail	box nail ²	6d box nail	
Plywood panel ^l (exterior grade)		3/8	Note g	Yes	0.099 nail-2"	0.113 nail-2½"	0.099 nail-2"	0.113 nail ² Staple ^e	0.099 nail-2"	6" on edges
Vinyl Siding ⁿ		0.035	Lap	Yes	0.120 nail 1½" Staple-1¾"	0.120 nail 2" Staple-2½"	0.120 nail 2" Staple-2½"	.0120 nail ² Staple ^e	Not allowed	Same as stud spacing
Wood ^k Rustic, drop		3/8 Min	Lap	Yes	Fastener penetration into stud-1"				0.113 nail-2½" Staple-2"	Face nailing up to 6" widths, 1 nail per bearing; 8" widths and over, 2 nails per bearing
Shiplap		19/32 Average	Lap	Yes						
Bevel		7/16								
Butt tip		3/16	Lap	Yes						
Brick veneer		2	Section R703	Yes	See Section R703 and Figure R703.7 ^h					
Concrete masonry veneer		2	(Note m)	Yes						
Stone veneer		2	Section R703	Yes (Note m)	See Section R703 and Figure R703.7 ^h					
Fiber cement panel siding ^s		5/16	Note t	Yes	6d corrosion resistant nail ^u	6d corrosion resistant nail ^u	6d corrosion resistant nail ^u		4 d corrosion resistant nail ^v	6" oc on edges, 12" oc on intermed. Studs
Fiber cement lap siding ^s		5/16	Note w	Yes Note y	6d corrosion resistant nail ^u	6d corrosion resistant nail ^u	6d corrosion resistant nail ^u		6d corrosion resistant nail ^s	Note x

For SI: 1" = 25.4 mm

- a. Based on stud spacing of 16 inches on center where studs are spaced 24 inches, siding shall be applied to sheathing approved for that spacing.
- b. Nail is a general description and shall be T-head, modified round head, or round head with smooth or deformed shanks.
- c. Staples shall have a minimum crown width of 7/16-inch outside diameter and be manufactured of minimum 16 gage wire.
- d. Nails or staples shall be aluminum, galvanized, or rust-preventative coated and shall be driven into the studs for fiberboard or gypsum backing.
- e. Aluminum nails shall be used to attach aluminum siding.
- f. Aluminum (0.019 inch) shall be unbacked only when the maximum panel width is 10 inches and the maximum flat area is 8 inches. The tolerance for aluminum siding shall be +0.002 inch of the nominal dimension.
- g. Sheathing paper required.
- h. All attachments shall be coated with a corrosion-resistive coating.
- i. Shall be of approved type.

- j. Three-eighths-inch plywood shall not be applied directly to studs spaced greater than 16 inches on center when long dimension is parallel to studs. One-half-inch plywood shall not be the face grain perpendicular to the studs or over sheathing approved for that stud spacing.
- k. Wood board sidings applied vertically shall be nailed to horizontal nailing strips or blocking set 24 inches on center. Nails shall penetrate 1.5 inches into studs, studs and wood sheathing combined, or blocking. A weather-resistant membrane shall be installed weatherboard fashion under the vertical siding unless the siding boards are lapped or battens are used.
 - l. Hardboard siding shall comply with AHA A135.6 as listed in chapter 43.
 - m. For masonry veneer, a weather-resistant sheathing paper is not required over a sheathing that performs as a weather-resistive barrier when a 1-inch air space is provided between the veneer and the sheathing. When the 1-inch space is filled with mortar, a weather-resistant sheathing paper is required over studs or sheathing.
 - n. Vinyl siding shall comply with ASTM D 3679 as listed in chapter 43.
 - o. Minimum shank diameter of 0.092 inch, minimum head diameter of 0.025 inch, and nail length shall accommodate sheathing and penetrate framing 1.5 inches.
 - p. When used to resist shear forces, the spacing must be 4 inches at panel edges and 8 inches on interior supports.
 - q. Minimum shank diameter of 0.099 inch, minimum head diameter of 0.240 inch, and nail length shall accommodate sheathing and penetrate framing 1.5 inches.
 - r. Vertical end joints shall occur at studs and shall be covered with a joint cover or shall be caulked.
 - s. Fiber cement siding shall comply with the requirements of ASTM C 1186 as listed in chapter 43.
 - t. See section R703.10.1 of the code.
 - u. Minimum 0.102 inch smooth shank, 0.255 inch round head.
 - v. Minimum 0.099 inch smooth shank, 0.250 inch round head.
 - w. See section R703.10.2 of the code.
 - x. Face nailing: 2 nails at each stud. Concealed nailing: one 11 gage 1-1/2 galvanized roofing nail (0.371 inch head diameter, 0.120 inch shank) or 6d galvanized box nail at each stud.
 - y. See exceptions in section R703.2 of the code.
 - z. Minimum nail length shall accommodate sheathing and penetrate framing 1.5 inches.

R703.6. Exterior plaster. Installation of these materials shall be in compliance with ASTM C 926, which is adopted by reference in these rules and ASTM C 1063, as listed in chapter 43. The ASTM C 926 standard is available for inspection at the Michigan Department of Labor & Economic Growth, Bureau of Construction Codes and Fire Safety, 2501 Woodlake Circle, Okemos, Michigan 48864, or from ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA, 19428, at a cost as of the time of adoption of these amendatory rules of \$30.00.

R703.6.3. Weather-resistant barriers. Weather-resistant barriers shall be installed as required in section R703.2 and, where applied over wood-based sheathing, shall include a weather-resistive vapor permeable barrier with a performance at least equivalent to 2 layers of grade D paper.

R703.8. Flashing. Approved corrosion-resistive flashing shall be provided in the exterior wall envelope in such a manner as to prevent entry of water into the wall cavity or penetration of water to the building structural framing components. The flashing shall extend to the surface of the exterior wall finish and shall be installed to prevent water from reentering the exterior wall envelope. Flashing shall extend to, or beyond, the finished exterior face of the wall. Approved corrosion-resistive flashing shall be installed at all of the following locations:

1. At top of all exterior window and door openings in such a manner as to be leakproof, except that self-flashing windows having a continuous lap of not less than 1 1/8 inches (28 mm) over the sheathing material around the perimeter of the opening, including corners, do not require additional flashing; jamb flashing may also be omitted when specifically approved by the building official.
2. At the intersection of chimneys or other masonry construction with frame or stucco walls, with projecting lips on both sides under stucco copings.
3. Under and at the ends of masonry, wood, or metal copings and sills.
4. Continuously above all projecting wood trim.
5. Where exterior porches, decks, or stairs attach to a wall or floor assembly of wood-frame construction.
6. At wall and roof intersections.
7. At built-in gutters.

R 408.30546 Minimum uniformly distributed live loads.

TABLE R301.5
MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS
(in pounds per square foot)

USE	LIVE LOAD
Attics with storage ^b	20
Attics without storage ^{bg}	10
Decks ^e	40
Exterior balconies	60
Fire escapes	40
Guardrails and handrails ^d	200
Guardrails in-fill components ^f	200
Passenger vehicle garages ^a	50 ^a
Rooms other than sleeping rooms	40
Sleeping rooms	30
Stairs	40 ^c

For SI: 1 pound per square foot = 0.0479 kN/m², 1 square inch = 645 mm², 1 pound = 4.45 N.

- a. Elevated garage floors shall be capable of supporting a 2,000-pound load applied over a 20-square-inch area.
- b. No storage with roof slope not over 3 units in 12 units.
- c. Individual stair treads shall be designed for the uniformly distributed live load or a 300-pound concentrated load acting over an area of 4 square inches, whichever produces the greater stresses.
- d. A single concentrated load applied in any direction at any point along the top.
- e. See section R502.2.1 for decks attached to exterior walls.
- f. Guard in-fill components (all those except the handrail), balusters, and panel fillers shall be designed to withstand a horizontally applied normal load of 50 pounds on an area equal to 1 square foot. This load need not be assumed to act concurrently with any other live load requirement.
- g. Load shall be applied non-concurrent with other variable loads.

R 408.30547. Referenced standards.

Rule 547. The TPI standard in chapter 43 of the code is amended to update the standard to the TPI 1-2002 edition.